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(54) Title of the invention: Information transmission/reception system, transmission information generator and received information reproducing device used for this system
(57) Abstract: Problem to be solved: To minimize the operation procedure till data desired to be referenced are reached and selection by undesired detection/judgment. Solution: The transmission information generator is provided with an area decision circuit 98 specifying an optional area in an input dynamic image synchronously time wise with moving image information, a pointer generation additional circuit 100 forming a table for decision area information of the circuit 98 and storing information cross-referencing additional information relating to the content of the decision area and generating pointer information, and an information multiplexer 102 multiplexing the generated pointer information onto moving image information together with additional information while keeping time wise synchronization with the dynamic image information. Thus, the receiver side receives the multiplexed information signal and separates dynamic image information, additional information and pointer information, reproduces the separated

dynamic image information and pointer information while keeping time wise synchronization relation and reproduces the additional information relating to the dynamic image information based on the pointer information.

[Claims]

[Claim 1]

The additional information relevant to the contents of dynamic-image information and the information sending set which is equipped with the information multiplex means which maintains the time synchronous relation between said dynamic-image information and said link information, and carries out multiplex of the link information which connects said dynamic-image information and said additional information, and transmits the information signal by which multiplex was carried out, the multiplex information signal sent out from said sending set is received. Said dynamic-image information, maintain time synchronous relation, reproduce an information-separator means to separate additional information and a link information, and said dynamic-image information and link information which were separated with this means, and it carries out based on that link information. The information transceiver system characterized by providing an information receiving set equipped with an information playback means to reproduce the additional information connected with dynamic-image information according to a demand.

[Claim 2]

A field specification means to input dynamic-image information, to synchronize in time and to pinpoint at least one field on a dynamic image to dynamic-image information, a link-information creation means to table information which

shows the relation between the image field information specified with this means, and the additional information relevant to the contents of the image field pinpointed using this information, and to create a link information, transmit information generation equipment characterized by providing the information multiplex means which carries out multiplex of the link information created with this means with said additional information while keeping synchronous relation time to said dynamic-image information.

[Claim 3]

Said link-information creation means is transmit-information generation equipment according to claim 2 characterized by having a means of information tabling which shows the relation between a means change into coordinate information the field pinpointed with said area-property means, and the additional information relevant to the contents of the field pinpointed using said coordinate information and information concerned with said coordinate information, and to output the table information as said link information.

[Claim 4]

Said link-information creation means is transmit-information generation equipment according to claim 2 characterized by having a means table information which shows the relation between a means change into predetermined signal-level information the field pinpointed with said area-property means, and the additional information relevant to the contents of the field pinpointed using said coordinate information and information concerned with said signal-level information, and to output the table information as said link information.

[Claim 5]
The additional information relevant to the contents of the specific image field of dynamic-image information and this dynamic-image information at least, the link information which tabled information which connects the dynamic-image information and said additional information of said specific image field, and said specific image field information the input signal of the multiplex information signal which maintains the time synchronous relation between said dynamic-image information and said link information, and multiplex is carried out, and is transmitted is inputted. An information-separator means to separate said dynamic-image information, additional information, and a link information, when it maintained and reproduces and the specific image field on a playback dynamic image is specified based on that link information in said dynamic-image information and link information which were separated with this means, the receipt information regenerative apparatus characterized by providing an information playback means to reproduce the additional information connected with the field.
[Claim 6]
Said information playback means is a receipt information regenerative apparatus according to claim 5 characterized by having a signal transduction means to change this coordinate information into the field information on a playback dynamic image when the specific image field information included in said link information is changed into coordinate information.
[Claim 7]
Said information playback means is a receipt information regenerative apparatus according to claim 5 characterized by having a signal transduction means to change this signal level

information into the field information on a playback dynamic image when the specific image field information included in said link information is changed into predetermined signal level information.

[Claim 8] Said information playback means is a receipt information regenerative apparatus according to claim 5 characterized by distinguishing a specific image field from the other field at the time of dynamic-image playback.

[Claim 9] Transmit information generation equipment according to claim 2 characterized by using the reference data of the storage information on internal memory media as said additional information.

[Claim 10] Said information playback means is a receipt information regenerative apparatus according to claim 5 characterized by carrying out read-out playback of the information which corresponds from said internal memory media with said internal memory media regenerative apparatus based on the reference data which are equipped with the regenerative apparatus of said internal memory media, and are obtained by additional information playback when said additional information is reference data of the storage information on internal memory media.

[Claim 11] Transmit information generation equipment according to claim 2 characterized by using the reference data of an accessible database from both a transmitting side and a receiving side as said additional information.

[Claim 12] Said information playback means is a receipt information regenerative apparatus according to claim 5 characterized by carrying out read-out playback of the information which corresponds to said database with said database access means based on the reference data which are

equipped with a database access means to access said database, and are obtained by additional information playback when said additional information is reference data of an accessible database from both a transmitting side and a receiving side.

[Detailed Description of the Invention]

[0001]

[Field of the Invention] Multiplex of dynamic-image information and the additional information relevant to the contents of this dynamic-image information is carried out at least, and it transmits, and this invention receives that multiplex information and relates to the information transceiver system which separates according to information and is reproduced, the transmit information generation equipment used for this system, and a receipt information regenerative apparatus.

[0002]

[Description of the Prior Art] In various fields, the electronization of an image, a sound, and data and application of fusion have spread so that it may be represented by expression called multimedia in recent years. For example, a computer, publication, education, etc. are raised. Moreover, also in the television (it is hereafter described as TV) broadcast which is the compound media of an image and voice from the first, an alphabetic character and easy graphic information are added to them, and broadcast which transmits and receives more various information is already realized in the form of teletext broadcast. Furthermore, also in the digital TV broadcast system by which utilization has already started in the U.S., equivalent or service beyond it is possible.

[0003] As one advantage of TV broadcast which digitizes and transmits a video signal, it is raised to one transmission channel that two or more programs can be transmitted. A transmission channel here is a channel in present TV broadcast, and there is a 6MHz band in ground broadcast.
[0004] According to reference (1) «Nikkei electronics books, a data compression technique, and the digital modulation technique», when transmitting digitally using a general 16QAM modulation, 4 bits (24 = 16 value) will be assigned to one symbol, and it will transmit by Hz in 4 bits per second. Therefore, when using a 16QAM modulation in the one present ground wave, it can transmit in a 6Mx4=24M/second. However, since the overhead by the filter shape and error correcting code for preventing interference between adjacent channels is needed, an actual transmission speed becomes small a little rather than this.
[0005] In MPEG 2 enacted by international standards in November, 1994, the rate after compression can transmit four programs to coincidence within one transmission channel, if they are programs like present TV in 5Mbps extent, since about the same quality as present NTSC and the compressed sound signals are hundreds Kbps. Furthermore, it is possible to carry out multiplex of the data for supplementing with an image or the contents of a program other than voice and the same various data as teletext broadcast, and to transmit them. Therefore, it is possible not only service arrangement like the conventional teletext broadcast but to transmit and receive another image, since it supplements with an image and the usual program which consists of voice.

[0006] Now, in the system which transmits and receives such various information, about the procedure for referring to data elements other than an image and the original program which consists of voice, MPEG 2 is made into an example and explained below.

[0007] First, the multiplex approach for transmitting two or more programs and data elements in MPEG 2, About the approach of choosing and trying listening a predetermined program in response to a data multiplex «Reference (2) INTERNATIONAL ORGANIZATION FOR STANDARDIZATION, ORGANISATION INTERNATIONALE DE NORMALISATION ISO/IEC JTC1/SC29/WG11 explains according to the system layer of MPEG 2 described by CODEING OF MOVING PICTURESAND ASSOCIATED AUDIO».

[0008] The contents of processing of a transmitting side are explained using drawing 15. Generally, a program consists of digital streams of some data elements, such as an image, voice, and data. Multiplex of each data element stream is carried out as a fixed-length packet identified by the unique number called PID (Packet Initial Data). Moreover, in order to show what kind of data element streams one program consists of, the table called PMT (Program Map Table) is defined.

[0009] After making an image and voice data into the packet data stream which performs data compression processing of a digital stream and is called PES (Packet Elementary Stream), it is common to carry out multiplex.

[0010] For example, after Program A compresses suitably five streams of two image streams (Video1, Video2), two voice streams (Audio1, Audio2), and one data stream (Data1), multiplex is carried out with the multiplex vessel (MUX) 11

with PMT (A) which is the table showing such contents, and it is summarized to one transport stream TS (A). In addition, depending on the case, description of the contents of a program is also included in PMT.

[0011]

Similarly, multiplex is carried out with the multiplex vessels 12 and 13 about the image of Programs B and C, voice, data, and PMT, and the transport streams TS (B) and TS (C) are constituted. In this case, although PMT is needed for each program, there is PAT (Program Association Table) as a table which generalizes PMT. PAT is the table showing correspondence of each program and each PMT.

[0012]

For example, TS (ALL) consists of carrying out multiplex of each transport streams TS (A), TS (B), and TS of three programs A, B, and C (C) with the multiplex vessel (MUX) 14. The table with PMT (A), PMT (B), and PMT (C) in each program, and adjusts these is PAT. In addition, multiplex is carried out as a fixed-length packet which can identify PAT and PMT as well as a data element stream by PID, and especially PAT is specified as PID=0.

[0013]

Next, the program selection by the decoding approach multiplex TS (ALL) and the viewer is explained using drawing 16. In this drawing, the input signal outputted from a tuner 21 is multiplex TS (ALL). Distribution supply of multiplex TS (ALL) is carried out at FIFO memories 22-25, SRAM26, and the program memory 27.

[0014]

The header which includes PID and a packet synchronization for packet discernment as explained previously is contained in

each packet multiplex TS (ALL). So, in this decoder, the logging phase (break of a fixed-length packet) of a packet is reproduced from periodicity packet synchronous in a header by the packet synchronous circuit which is not illustrated.
[0015]
It becomes possible to extract and write in only a packet required for each memory (FIFO 22-25, SRAM26, program memory 27) by directing the ID number similarly contained in a packet header based on this topology by the depacketing controller 28.
[0016]
In addition, the ID number of immobilization is assigned on the property in which a PAT packet is indispensable to viewing-and-listening selection. In MPEG 2, as explained previously, the ID is set to 0.
[0017]
First, it is directed in the program memory 27 that the depacketing controller 28 incorporates PID=0 in response to the command from MPU29. The data incorporated by the program memory 27 packet PAT shown in drawing 15. This PAT is read into MPU29 through a bus 30.
[0018]
At this time, MPU29 restores PAT, stores it in memory 31, acquires PID of each PMT of three programs A, B, and C based on PAT, and directs to incorporate through the depacketing controller 28 in the program memory 27.
[0019]
Furthermore, MPU29 reads PMT through a bus 30, solves a packet, reverts, and is stored in memory 31. Thus, the program information by PAT and PMT which were stored in memory 31 is sent and displayed on a display 35 via

VRAM32, D/A converter 33, and the screen composition machine 34.

[0020]

An example of the display of a program configuration table to drawing 17 is shown. In this example, three program names under current broadcast are displayed. Since a viewer does not need to know the numeric value of PID itself directly, it is not necessary to display especially.

[0021]

In addition, although MPU29 explained that it depacketed by incorporating PID of each PMT of Programs A, B, and C in the condition of having been packeted, in the program memory 27 by the above-mentioned publication, you may direct to write in the condition that the program memory 27 depacketed through the depacketing controller 28.

[0022]

In this way, suppose that the viewer chose Program A from the displayed program configuration using the remote controller 36. The program selection directions by the viewer are sent to MPU29 and the depacketing controller 28 through the infrared light sensing portion 37 and a microcomputer (the abbreviation for a microcomputer) 38.

[0023]

In MPU29, the color of the part currently displayed as Program A in drawing 17 is changed, and while performing processing which feeds back the remote control actuation by the viewer to a screen, with reference to PAT on memory 31, and PMT, each PID of the image which constitutes Program A, and voice is obtained, so that it may be shown that Program A was chosen. As shown in drawing 15, when two or more images and voice exist in one program, the signal which

attaches priority by the transmitting side and should be decoded by the default is directed, and it transmits.
[0024]
In a receiving side, an image and 1 set of voice can be chosen according to these directions, or two or more images and voice can be chosen as order with a high priority with the same or priority at coincidence. Here, the former example explains.
[0025]
FIFO24 is controlled to depacket only the PID packet of the voice directed while MPU29 controlled FIFO22 to depacket and incorporate only a packet with PID of the image directed through the depacketing controller 28, if each PID of the image which constitutes Program A, and voice is obtained, and to incorporate. In this way, the video signal and sound signal which were compressed are incorporated by FIFO 22 and 24, respectively.
[0026]
Here, the packet header containing PCR (Program Clock Reference) is incorporated in the clock regenerative circuit 48, and reproduces a clock required for decoding. Based on this playback clock, the image decoder 39 develops, and the image data of FIFO22 are sent and displayed on a display 35 through the screen composition machine 41, D/A converter 42, and the screen composition machine 34.
[0027]
The 1st step of screen composition machine 41 performs the processing, when displaying the video signal from two image decoders 39 and 40 on a screen at coincidence, and the 2nd step of screen composition machine 34 compounds a video signal and the graphical data outputted from VRAM32. The

configuration of this screen composition machine 34 and D/A converter 33 does not necessarily need to be this configuration in this sequence.

[0028]

On the other hand than a loudspeaker 47, based on a playback clock, it is elongated by the voice decoder 43, and the voice output of the sound signal is carried out through a selector 45 and D/A converter 46. Next, it explains how an image and voice are synchronized. In MPEG 2, the frequency and topology of 42 bit length are transmitted as PCR as explained to reference (2) at the detail. It means that this can express the time of day for about 26 hours in 27Mhz precision, and is transmitting the time of day.

[0029]

The output signal of the clock regenerative circuit 48 shown in drawing 16 is a counter value output with not the reproduced clock but the reproduced clock. That is, it is a current time output in 27Mhz precision. Of course, the time of day in this case is imagination time of day which an encoder uses, and it is not necessarily in agreement with the time of day currently used every day.

[0030]

In the PES packet, the timing which should reproduce the data element streams (an image, voice, etc.) contained in the packet is contained as time of day on the encoder virtual time shaft mentioned above (it is called a time stump). Therefore, the image decoder 39 can obtain the timing which decodes a video signal and is outputted to a display system in inputting, the PES output, i.e., the time stump, of FIFO22, imagination time-axis, i.e., clock playback output, reproduced by PCR. The voice decoder 43 can completely reproduce voice to

suitable timing similarly. Thus, synchronous playback of an image and voice is indirectly realized because an image and each voice decode to proper timing with PCR and a time stump.

[0031]

In addition, the processing assignment with the microcomputer 38 and MPU29 which have been explained by drawing 16 can cover each other, and can also exchange each assignment partially.

[0032]

It can choose and try listening the program which receives and wishes the digital broadcast by which packet multiplexing was carried out as explained above. Then, the procedure of referring to the data element is explained. Generally, in the condition of trying listening Program A, a viewer operates the additional information button using a remote controller 36. The additional information display directions by the viewer are boiled and sent to MPU29 through the infrared light sensing portion 37 and a microcomputer 38.

[0033]

In MPU29, PID and the contents of the data stream of others which constitute Program A are acquired with reference to PAT on memory 31, and PMT like the image and voice which were mentioned above. In this case, in drawing 15, the screen which it is trying listening is the data streams of an image (Video1), voice (Audio1), and others an image (Video2), voice (Audio2), and data (Data1).

[0034]

Next, MPU29 controls SRAM26 to depacket and incorporate only a packet with directed PID through the depacketing controller 28. The data stream packet incorporated by

SRAM26 has an additional information menu as compounded with the screen under present viewing and listening with VRAM32, D/A converter 33, and the screen composition vessel 34, for example, shown on a screen at drawing 18 displayed, after being decoded in MPU29 by the suitable format for a display. Thus, the contents of the additional information by which current transmission is carried out can be displayed by directing by the remote controller 36.

[0035]

If Program A is a soccer relay broadcast program of Japanese pair South Korea, the animation under game is displayed on Screen 51 of drawing 18, and a menu still like 52-55 overlaps, and is displayed. 52 is a photo of the same soccer relay broadcast with the camera of another angle type, and is equivalent to Video2 and Audio2 in drawing 15. 53-55 are the database information equivalent to Data1 in drawing 15, and also contain a non-real-time-image and voice depending on the case.

[0036]

Now, when a score goes into a Japanese team in the game of soccer, the actuation which makes a jersey number reliance and displays a player's shot profile is explained. First, it directs that additional information explained above by the remote controller 36, and the contents of drawing 18 are displayed. Next, if the selection directions of 55 are carried out, the information shown in drawing 19 (a) will be displayed. The information shown in drawing 19 (b) when the selection directions of the menu 61 are furthermore carried out is displayed, and if the selection directions of the menu 62 are carried out, the information shown in drawing 19 (c) will be displayed.

[0037]
If the selection directions of a player's jersey number (63) shot here are carried out, the information shown in drawing 19 (d) is displayed, and the profile of the player can be obtained. The DS included in the data stream Data1 for realizing the display of drawing 18 explained above and drawing 19 is explained using drawing 20.
[0038]
Drawing 20 is text data contained in a data stream Data1, and it shows the contents of a menu that the part surrounded by [] and continues after Menu ID. For example, 71 is ID of the menu shown in drawing 18, and the title is shown by 72. The number of items which furthermore constitutes a menu is shown by nItem, and a menu item continues by nItem (73) and after that (74-77).
[0039]
Each menu item consists of a group of the menu ID displayed on a degree a menu title and when it is chosen. For example, if 77 supports the menu 55 of drawing 18, and displays it as a «player profile» and [Menu 1-3] is chosen, it jumps to 78. [Menu 1-3] in 78, a title, the number of items, each menu item, etc. are the same as that of [Menu0], and a menu like drawing 19 (a) is displayed. When a menu 61 is chosen in this drawing, 81 is referred to and it is [Menu 2-1]. It jumps to 83. It is [Menu 4-2] like the following. 84 can be reached and the profile of the player who showed drawing 19 (d) can be displayed.
[0040]
[Menu 4-2] of drawing 20 in 84, the jump place menu when 85 is chosen serves as NONE. In this case, even if chosen, it does not jump anywhere.

[0041]
A series of above actuation can refer the information added to the program. As explained above, in the system which transmits and receives various information, there is a trouble that procedure until it reaches required data increases very much, by the conventional menu display / selection approach for referring to data elements other than an image and the original program which consists of voice.
[0042]
In the example explained in the top, four menu selection needed to be performed by reference. And possibility that a procedure until it chooses unsuitable alternative accidentally and reaches the data of choice as well as the possibility of a simple failure increasing besides it will increase beyond the need also becomes large, so that procedure increases in this way.
[0043]
And it must choose, guessing and judging in which although the data of choice are a specific player's profile, data to refer to originally among the menu items displayed each time are contained as the player's jersey number is chosen in the player's affiliation team, and this drawing (b) in drawing 19 (a). In other words, the activity which applies data to refer to the DS of the menu tree for which is provided, and classifies them as needed to be done.
[0044]
[Problems to be Solved by the Invention] As explained above, in order to refer to additional information other than the original information which consists of an image and voice in the conventional system which transmits and receives various information, selection actuation of a display menu is

complicated and possibility that a procedure until it is easy to generate a failure, it induces unprepared actuation and it reaches the data of choice will increase beyond the need is large. Moreover, it was what must choose guessing and judging in which data to refer to originally are contained from a menu item, and needs to do the activity which applies to the DS of the menu tree currently provided with data to refer to, and is classified, and it is hard for a viewer to use.

[0045]

The technical problem of this invention is to offer the transmit information generation equipment and the receipt information regenerative apparatus which are used for operating procedure until it reaches the data which want to solve and refer to the above-mentioned technical problem, the information transceiver system which can stop selection by unnecessary guess and decision to the minimum, and this system.

[0046]

[Means for Solving the Problem] In order to solve the above-mentioned technical problem, the information transceiver system concerning this invention the additional information relevant to the contents of dynamic-image information and this dynamic-image information at least, the information sending set which is equipped with the information multiplex means which maintains the time synchronous relation between said dynamic-image information and said link information, and carries out multiplex of the link information which connects said dynamic-image information and said additional information, and transmits the information signal by which multiplex was carried out, the multiplex information signal sent out from said sending set is received. Said dynamic-image information, maintain time synchronous

relation, reproduce an information-separator means to separate additional information and a link information, and said dynamic-image information and link information which were separated with this means, and it carries out based on that link information. It is characterized by providing an information receiving set equipped with an information playback means to reproduce the additional information connected with dynamic-image information according to a demand.

[0047]

Moreover, the transmit information generation equipment concerning this invention inputs dynamic-image information. A field specification means to synchronize in time and to pinpoint at least one field on a dynamic image to dynamic-image information, a link-information creation means to table information which shows the relation between the image field information specified with this means, and the additional information relevant to the contents of the image field pinpointed using this information, and to create a link information, it is characterized by providing the information multiplex means which carries out multiplex of the link information created with this means with said additional information while keeping synchronous relation time to said dynamic-image information.

[0048]

Furthermore, the receipt information regenerative apparatus concerning this invention The additional information relevant to the contents of the specific image field of dynamic-image information and this dynamic-image information at least, the link information which tabled information which connects the dynamic-image information and said additional information of

said specific image field, and said specific image field information the input signal of the multiplex information signal which maintains the time synchronous relation between said dynamic-image information and said link information, and multiplex is carried out, and is transmitted is inputted. An information-separator means to separate said dynamic-image information, additional information, and a link information, when time synchronous relation is maintained for said dynamic-image information and link information which were separated with this means, it reproduces and the specific image field on a playback dynamic image is specified based on that link information, it is characterized by providing an information playback means to reproduce the additional information connected with that field.

[0049]

In the information transceiver system concerning this invention, it sets to a transmitting side. At least dynamic-image information, the link information which connects the additional information relevant to the contents, and the dynamic-image information and said additional information of this dynamic-image information maintain the time synchronous relation between dynamic-image information and a link information, carry out multiplex, transmit the information signal by which multiplex was carried out, and it sets to a receiving side. A multiplex information signal is received, and he separates dynamic-image information, additional information, and a link information, and is trying to reproduce the additional information which maintained, was reproduced and was connected with dynamic-image information based on the link information in the dynamic-

image information and the link information which were separated according to a demand.

[0050]

Especially the transmit information generation equipment concerning this invention inputs dynamic-image information. The image field information which synchronized with dynamic-image information in time, pinpointed at least one field on a dynamic image, and was specified, Information which shows relation with the additional information relevant to the contents of the image field pinpointed using this information is tabled, and a link information is created, and it is made to carry out multiplex of the created link information with additional information, keeping synchronous relation time to dynamic-image information.

[0051]

Moreover, when the input signal of the above-mentioned multiplex information signal was inputted, and separate said dynamic-image information, additional information, and a link information, time synchronous relation is maintained for the dynamic-image information and the link information which were separated, it reproduces and the specific image field on a playback dynamic image is specified based on that link information, he is trying for the receipt information regenerative apparatus concerning this invention to reproduce the additional information connected with that field.

[0052]

[Embodiment of the Invention] Hereafter, the embodiment of implementation of this invention is explained to a detail, referring to a drawing.

[The 1st operation embodiment] The 1st operation embodiment is characterized by the following points. First, in

a transmitting side, «the field» (an access field is called hereafter) which can access data if it points is determined among the contents of an animation by which current broadcast is carried out. This field is changed synchronizing with the contents of a dynamic image. For example, the «access field» is expressed with a rectangle, and the «pointer» to the additional information accessed at the time of the coordinate which can pinpoint a field, and its field point is created. It is «additional information» (an image, voice, and alphabetic data) to the point which a pointer shows.

[0053]

Thus, packet which has an hour entry for the created additional information (for example, PES of an MPEG-2 system layer) it encodes. In PES, it is possible to reproduce synchronously the packet by which multiplex was carried out with a time stump. Then, multiplex of a «image» and «voice» packet, «additional information», and «a field and a pointer» (for example, TS of an MPEG-2 system layer) is carried out, and they are transmitted.

[0054]

Next, in a receiving side, TS is decoded and the data element (PES) of an «image», «voice», and «a field and a pointer» is obtained, respectively. Each PES is decoded and synchronous playback of an «image», «voice», and «a field and a pointer» is performed based on a time stump. Here, if synchronous playback of data is pointed at, it means that the «field» which can access data, and its image and voice can be reproduced synchronously.

[0055]

When a viewer moves the pointer on a screen to a «field» inside by a remote controller etc., the cursor configuration of a

pointer is changed and it is shown that it is a «field». When a viewer directs «refer to the data» in a «field», «additional information» packet related with the field is decoded, and it displays on a screen.

[0056]

As 1st operation embodiment of the information transceiver system concerning this invention, drawing 1 shows the configuration of transmit information generation equipment (a decoder is only called hereafter), and Program A adds additional information Data1 to the usual program which consists of video signals Video1 and Video2 and sound signals Audio1 and Audio2, and is constituted. The data compression of video signals Video1 and Video2 and the sound signals Audio1 and Audio2 is carried out by the compression circuits 91, 92, 93, and 94, respectively, and they are encoded by the PES encoding circuits 95, 96, 97, and 98 at PES.

[0057]

On the other hand, a video signal Video1 is inputted into the field decision circuit 98, and if it points among the contents of an animation, the field (an access field is called hereafter) which can access data will be determined. An example of the access field is shown in drawing 2.

[0058]

Drawing 2 (a) shows the screen equivalent to the input video signal to the field decision circuit 98 in a certain time of day. Score progress is displayed on the soccer player and the upper left which were shot to the screen right. In this image, access fields to specify are a soccer player, a score, and two team names, and as shown in drawing 2 (b), each access field is

expressed in the rectangle, so that easily transmitting as a coordinate value.

[0059]

At this time, data as show the field decision circuit 98 to black level and show only an access field to drawing 2 (c) as pedestal level except it are outputted. This field is changed synchronizing with the contents of a dynamic image. In addition, when protecting individual privacy for example, in present TV broadcast, the technique already performed can realize dynamic assignment processing of an access field performed in the field decision circuit 98.

[0060]

The output (drawing 2 (c)) of the field decision circuit 98 is inputted into the coordinate creation circuit 99, and is changed into a coordinate value. For example, as shown in drawing 2 (d), four parameters which show the width of face 203 and the height 204 which show the location of top-most vertices 202 (TOPx201, TOPy201) (WIDTH201, HEIGHT201) can express the access field 201.

[0061]

In this way, the pointer to the information relevant to each numeric-data access field is added by the pointer creation addition circuit 100. The output data of the pointer creation addition circuit 100 are shown in drawing 3 (a).

[0062]

In drawing 3 (a), 301 has described each access field shown in drawing 2 (c). 302 is PID of the data packet displayed when the width of face of a field 201 and height, and 1000 choose the top-most-vertices coordinate of a field 201 as for (TOPx201, TOPy201) and (WIDTH201 and HEIGHT201) choose a field 201, and Menu 1-0 about the access field 201 in

drawing 2 (c). The menu name in the above-mentioned data is shown. In addition, the same is said of 303,304,305.
[0063]
Thus, the output data constituted by the pointer to a coordinate and additional information are encoded by PES in the PES encoding circuit 101. The contents of the additional information Data1 included in the data packet whose PID is 1000 are shown in drawing 3 (b). It is the menu name [Menu 1-0] 306 is indicated to be by 302 of drawing 3 (a) in this drawing 3 (b). The contents are described.
[0064]
Multiplex of the video signal by which PES encoding was carried out, a sound signal, an access field and pointer data, and the additional information is carried out with the multiplex vessel (MUX) 102 with PMT, and the transport stream TS of Program A (A) is constituted by this. Multiplex of this TS (A) is carried out with the multiplex vessel 105 with the transport streams TS (B) and TS of the programs B and C of others which were similarly constituted with the multiplex vessel 103,104 (C), and PAT, and the transmitting transport stream TS (ALL) is constituted.
[0065]
Next, decoding is explained using drawing 4. In addition, in drawing 4, the same sign is attached and shown in the same part as drawing 16, and the explanation is omitted. Drawing 4 shows the configuration of the receipt information regenerative apparatus (a decoder is only called hereafter) of the information transceiver system concerning this invention. The configuration of the decoder which performs the usual program decoding (an image, audio synchronous playback) based on the program selection by the viewer and its selection

is completely the same as the conventional configuration shown in drawing 16 so that clearly from drawing 4. However, about the PES packet (output of the PES encoding circuit 101 by the side of the encoder of drawing 1) of a field / pointer data, PID can be obtained with reference to PAT on memory 31, and PMT like an image or voice in MPU29.

[0066]

MPU29 controls SRAM26 to depacket and incorporate only a packet with directed PID through the depacketing controller 28. In MPU29, from the data stream packet incorporated by SRAM26, the field coordinate information shown in drawing 3 (a) is acquired, and it stores in memory 31.

[0067]

In addition, data packet decoding of these single strings in MPU29 is performed at suitable time of day based on the imagination time-axis information by which it is outputted from the clock regenerative circuit 48, and the time stump information included in a data packet. For this reason, the image in the same program, voice, etc. will be reproduced synchronizing with other streams. Therefore, the image shown in drawing 2 (a) is displayed on the display 35 at this time.

[0068]

Next, actuation when a viewer moves the cursor on a screen (cursor is displayed on a display 35 through VRAM32, D/A converter 33, and the screen composition machine 34) using a remote controller 36 is explained. The cursor on a screen here assumes a pointing device which is represented by the mouse cursor of a computer.

[0069]

The cursor advance directions by the viewer are sent to MPU29 through the infrared light sensing portion 37 and a

microcomputer 38. MPU29 compares the field coordinate information (drawing 3 (a)) stored in the cursor location and memory 31 on a screen. If cursor is in a field, it will notify that additional information is transmitted to the viewer by changing a cursor configuration and a color. For example, it turns out that the information about this player can be referred to by changing a cursor configuration when moving cursor all over the field 201 of drawing 2 (c).

[0070]

A viewer operates for example, the [data] button of this remote controller, and if the directions which refer to that data are issued, those directions will be told to MPU29 like the above-mentioned processing. The information related in MPU29 from the field coordinate information (drawing 3 (a)) stored in memory 31 and the coordinate of a cursor location is [Menu 1-0] of PID1000. It distinguishes being contained.

[0071]

Next, MPU29 controls SRAM26 so that PID depackets and incorporates only the packet of 1000 through the depacketing controller 28. In MPU29, the data of a player profile shown in drawing 3 (b) from the data stream packet incorporated by SRAM26 are obtained. By reproducing this data and sending out to a display 35, the same player profile as drawing 19 (d) shown in the conventional example can be displayed.

[0072]

In addition, in the operation embodiment explained above, although the data and «additional information» of «a field and a pointer» were explained as an other stream from which PID differs, it is possible to carry out multiplex of them to the same stream, and they may carry out multiplex to a part of TS of another channel. The case of the latter 302, for example,

setting the width of face of 201, and height 201(WIDTH201, HEIGHT201) being shown at drawing 3 (a) are necessary is just to add the channel number (for example, 1) which is transmitting the data packet displayed when a field is chosen which shows PID 1000 of a data packet

[0073]

Moreover, of course, although «the field and pointer» which are called TS, and the common transmission system are used for transmission of «additional information», even if it uses other transmitting media, such as under analog TV broadcast and CATV, it is realizable by the same technique.

[0074]

Moreover, although the text which says a player profile as «additional information» was made into the example and explained, it is possible not only an alphabetic character but for it to be adapted in other data, such as an image and voice.

[The 2nd operation embodiment] In response to directions of refer to the data by the viewer, to decoding «additional information» packet, before the 1st operation embodiment receives directions, it is characterized by decoding beforehand and storing in memory with the 2nd operation embodiment.

[0075]

That is, in a transmitting side, an «access field» is determined among the contents of an animation by which current broadcast is carried out. This field is changed synchronizing with the contents of a dynamic image. For example, the «field» is expressed with a rectangle, the «pointer» to the additional information accessed at the time of the coordinate which can pinpoint a field, and its field point is created, and «additional information» (an image, voice, and alphabetic data) is created at the point which a pointer shows.

[0076]
The information created as mentioned above is encoded to a packet (for example, PES of an MPEG-2 system layer) with a hour entry. In PES, it is possible to reproduce synchronously the packet by which multiplex was carried out with a time stump. Multiplex of a «image» and «voice» packet, «additional information», and «a field and a pointer» (for example, TS of an MPEG-2 system layer) is carried out, and they are transmitted.
[0077]
On the other hand, in a receiving side, TS is decoded and the data element of an «image», «voice», «a field and a pointer», and «additional information» is obtained, respectively. Based on a time stump, decoding and synchronous playback of an «image», «voice», and «a field and a pointer» are performed. If synchronous playback of data is pointed at, it means that the «field» which can access data, and its image and voice can be reproduced synchronously. «Additional information» is decoded and it stores in memory.
[0078]
When a viewer moves the pointer on a screen to a «field» inside by a remote controller etc., the cursor configuration of a pointer is changed and it is shown that it is a «field». When a viewer directs «refer to the data» in a «field», the «additional information» related with the field is acquired from on memory, and it displays on a screen.
[0079]
Hereafter, the 2nd operation embodiment of this invention is explained focusing on difference with the 1st operation embodiment. To processing of the receiving side in the 1st operation embodiment decoding «additional information»

packet, after receiving directions of refer to the data by the viewer, before the 2nd operation embodiment receives directions, it is decoded beforehand and stored in memory, and if directions of referring to the data by the viewer are received, data will be obtained from on the memory.

[0080]

Since it is completely the same as that of the 1st operation embodiment about encoding processing of a transmitting side, the configuration of an encoder and explanation of an operation are omitted. Moreover, since it is common in the 1st operation embodiment also about decoding of a receiving side, the configuration and operation of a decoder are explained with reference to drawing 4.

[0081]

The configuration of the decoder which performs the usual program decoding (an image, audio synchronous playback) based on the program selection by the viewer and its selection is completely the same as that of the 1st operation embodiment, as shown in drawing 4. Moreover, in MPU29, PID can be obtained with reference to PAT on memory 31, and PMT like an image or voice like the 1st operation embodiment also about the PES packet (output of the PES encoding circuit 101 by the side of the encoder of drawing 1) of a field/pointer data.

[0082]

MPU29 controls SRAM26 to depacket and incorporate only a packet with directed PID through the depacketing controller 28. In MPU29, from the data stream packet incorporated by SRAM26, the field coordinate information shown in drawing 3 (a) is acquired, and it stores in memory 31.

[0083]
In addition, data packet decoding of these single strings in MPU29 is performed at suitable time of day based on the imagination time-axis information by which it is outputted from the clock regenerative circuit 48, and the time stump information included in a data packet. For this reason, the image in the same program, voice, etc. will be reproduced synchronizing with other streams. Therefore, the image shown in drawing 2 (a) is displayed on the display 35 at this time.
[0084]
Next, actuation when a viewer moves the cursor on a screen (cursor is displayed on a display 35 through VRAM32, D/A converter 33, and the screen composition machine 34) using a remote controller 36 is explained. The cursor on a screen here assumes a pointing device which is represented by the mouse cursor of a computer.
[0085]
The cursor advance directions by the viewer are sent to MPU29 through the infrared light sensing portion 37 and a microcomputer 38. MPU29 compares the field coordinate information (drawing 3 (a)) stored in the cursor location and memory 31 on a screen. If cursor is in a field, it will notify that additional information is transmitted to the viewer by changing a cursor configuration and a color. For example, when moving cursor all over the field 201 of drawing 2 (c), it turns out that the information about this player can be referred to by changing a cursor configuration.
[0086]
A viewer operates for example, the [data] button of this remote controller, and if the directions which refer to that data are issued, those directions will be told to MPU29 like the

above-mentioned processing. The field coordinate information (drawing 3 (a)) stored in memory 31 in MPU29, and the coordinate of a cursor location to [Menu 1-0] It turns out that it is contained. [Menu 1-0] Since the contents are already stored in memory 31, MPU29 is memory 31 to [Menu 1-0]. That is, the player profile shown in drawing 3 (b) is obtained, and the same data as drawing 19 (d) shown in the conventional example can be displayed.

[The 3rd operation embodiment] To obtaining from TS to which «additional information» is transmitted, with this 3rd operation embodiment, the 1st and 2nd operation embodiment places locally the data beforehand distributed by the storage etc., and refer to the data for it from there.

[0087]

That is, in a transmitting side, an «access field» is determined among the contents of an animation by which current broadcast is carried out. This field is changed synchronizing with the contents of a dynamic image. For example, the «access field» is expressed with a rectangle, and the «pointer» to the additional information accessed at the time of the coordinate which can pinpoint a field, and its field point is created. It is «additional information» (an image, voice, and alphabetic data) to the point which a pointer shows. It creates and provides for the viewer by media, such as a floppy disk, CD-ROM, and a memory card.

[0088]

Thus, the created additional information is encoded to a packet (for example, PES of an MPEG-2 system layer) with an hour entry. In PES, it is possible to reproduce synchronously the packet by which multiplex was carried out with a time stump. Then, multiplex of a «image» and «voice»

packet, and «a field and a pointer» (for example, TS of an MPEG-2 system layer) is carried out, and they are transmitted.
[0089]
Next, in the receiving side, the «additional information» distributed beforehand carries out inserting in the CD-ROM drive of the receiving inside of a plane, transmitting to memory, etc. TS is decoded and the data element of a «image», «voice», and «a field and a pointer» is obtained, respectively. Based on a time stump, decoding and synchronous playback of an «image», «voice», and «a field and a pointer» are performed. Here, if synchronous playback of data is pointed at, it means that the «field» which can access data, and its image and voice can be reproduced synchronously.
[0090]
When a viewer moves the pointer on a screen to a «field» inside by a remote controller etc., the cursor configuration of a pointer is changed and it is shown that it is a «field». When a viewer directs «refer to the data» in a «field», the «additional information» related with the field is acquired from on a CD-ROM drive or memory, and it displays on a screen.
[0091]
Hereafter, the 3rd operation embodiment of this invention is explained focusing on difference with the 1st operation embodiment. To the 1st operation embodiment acquiring «additional information» from the transformer stream TS (ALL), with the 3rd operation embodiment, the various data which included the player profile in the information storage medium are stored. and the viewer is beforehand supplied widely. And the distributed data are placed locally and data are referred to from there. As an information storage medium,

a floppy disk, CD-ROM, a memory card, etc. are raised, for example.

[0092]

Hereafter, the configuration of the encoder of the transmitting side in the 3rd operation embodiment of this invention is explained with reference to drawing 5. In addition, in drawing 5, the same sign is attached and shown in the same part as drawing 1. The difference with drawing 1 is a point currently offered through external storage 106 from the internal memory media 107 which did not carry out multiplex of the additional information with the multiplex vessel 102, but include a player profile beforehand, and in which data are stored variously.

[0093]

This internal memory media 107 are beforehand distributed to the viewer beforehand to which the transformer stream TS (ALL) is transmitted. Moreover, unlike drawing 3 (a), the output data of the pointer creation addition circuit 100 in drawing 5 come to be shown in drawing 7 for distribution by such storage media. Here, in drawing 7, 307 is related with the field of 201 in drawing 2 (c) (TOPx201, TOPy201), the top-most-vertices coordinate of 201, and (WIDTH201, HEIGHT201) are the width of face of 201 and height, and File1. The file name in the internal memory media 107 containing the data packet displayed when a field 201 is chosen, and Menu 1-0 is the description which says the menu name in the above-mentioned file.

[0094]

Next, decoding is explained using drawing 6. In addition, in drawing 6, the same sign is attached and shown in the same part as drawing 16, and the explanation is omitted. The

configuration of the decoder which performs the usual program decoding (an image, audio synchronous playback) based on the program selection by the viewer and its selection is completely the same as the conventional configuration shown in drawing 16 so that clearly from drawing 6. Moreover, in MPU29, PID can be obtained with reference to PAT on memory 31, and PMT like an image or voice also about the PES packet of a field/pointer data (output of the PES encoding circuit 101 by the side of the encoder of drawing 5).

[0095]

MPU29 controls SRAM26 to depacket and incorporate only a packet with directed PID through the depacketing controller 28. In MPU29, from the data stream packet incorporated by SRAM26, the field coordinate information shown in drawing 3 (a) is acquired, and it stores in memory 31.

[0096]

In addition, since data packet decoding of these single strings in MPU29 is performed at suitable time of day based on the imagination time-axis information by which it is outputted from the clock regenerative circuit 48, and the time stump information included in a data packet, it will be reproduced synchronizing with other streams, such as an image in the same program, and voice. Therefore, the image shown in drawing 2 (a) is displayed on the display 35 at this time.

[0097]

Now, actuation when a viewer moves the cursor on a screen using a remote controller 36 is explained. The cursor on a screen here assumes a pointing device which is represented by the mouse cursor of a computer.

[0098]
The cursor advance directions by the viewer are sent to MPU29 through the infrared light sensing portion 37 and a microcomputer 38. MPU29 compares the field coordinate information (drawing 3 (a)) stored in the cursor location and memory 31 on a screen. Cursor is displayed on a display 35 through VRAM32, D/A converter 33, and the screen composition machine 34.
[0099]
If cursor is in a field, it will notify that additional information is transmitted to the viewer by changing a cursor configuration and a color. For example, it turns out that a cursor configuration will change if cursor is moved all over the field 201 of drawing 2 (c), and the information about this player can be referred to.
[0100]
For example, the [data] button of a remote controller 36 is operated, and if the directions which refer to the data are issued, the directions will be told to MPU29 like before. MPU29 is Menu 1-0 by which the related additional information is included in the file File1 of the internal memory media 108 from the field coordinate information (drawing 3 (a)) stored in memory 31, and the coordinate of a cursor location, Menu 1-1, Menu 1-2, and Menu 1-3. It turns out that it is four and stores in memory 31 through external storage 109.
[0101]
Thus, the player profile shown in drawing 3 (b) is obtained, and the same data as drawing 19 (d) shown in the conventional example can be displayed.

[The 4th operation embodiment] acquire and refer to the «additional information» for the 3rd operation embodiment through the telephone line or a network with the 4th operation embodiment to placing locally beforehand.

[0102]

That is, in a transmitting side, an «access field» is determined among the contents of an animation by which current broadcast is carried out. This field is changed synchronizing with the contents of a dynamic image. For example, the «field» is expressed with a rectangle and the «pointer» to the additional information accessed at the time of the coordinate which can pinpoint a field, and its field point is created. It is «additional information» (an image, voice, and alphabetic data) to the point which a pointer shows. It creates and stores in the location which can be referred to through the telephone line or a network. Or the pointer to the data in which such reference is possible is already created.

[0103]

Thus, the created additional information is encoded to a packet (for example, PES of an MPEG-2 system layer) with an hour entry. In PES, it is possible to reproduce synchronously the packet by which multiplex was carried out with a time stump. Multiplex of a «image» and «voice» packet, and «a field and a pointer» (for example, TS of an MPEG-2 system layer) is carried out, and they are transmitted.

[0104]

Next, in a receiving side, TS is decoded and the data element of an «image», «voice», and «a field and a pointer» is obtained, respectively. Based on a time stump, decoding and synchronous playback of an «image», «voice», and «a field and a pointer» are performed. Here, if synchronous playback

of data is pointed at, it means that the «field» which can access data, and its image and voice can be synchronized and reproduced.

[0105]

When a viewer moves the pointer on a screen to a «field» inside by a remote controller etc., the cursor configuration of a pointer is changed and it is shown that it is a «field». When a viewer directs «refer to the data» in a «field», the «additional information» related with the field is acquired through the telephone line or a network, and it displays on a screen.

[0106]

Hereafter, the 4th operation embodiment of this invention is explained focusing on difference with the 3rd operation embodiment. The various data with which the 3rd operation embodiment included the player profile for «additional information» in the storage etc. are stored, and it puts on the remote place which can be referred to through the telephone line or a network to supplying a viewer widely beforehand with this operation embodiment.

[0107]

Hereafter, the encoder in the 4th operation embodiment of this invention is explained using drawing 8. The difference with drawing 5 is a point which additional information is not offered through external storage 106 from the internal memory media 107, and is offered from the data server 112 on a network 111 through the network interface circuit 110.

[0108]

The data on this data server 112 may be beforehand stored in beforehand to which TS (ALL) is transmitted on a server, and they input additional information from an input terminal 113, and you may make it store it in the data server 112 through

the input to the pointer creation addition circuit 100 simultaneously the network interface circuit 110, and a network 111

[0109]

Moreover, since it stores in the data server 112 on a network 111, unlike drawing 7, the output data of the pointer creation addition circuit 100 in drawing 8 come to be shown in drawing 10. In drawing 10, 308 is related with the field of 201 in drawing 2 (c) (TOPx201, TOPy201), For the width of face of 201 and height, and Server Name, the top-most-vertices coordinate of 201, and (WIDTH201, HEIGHT201) are Server Name on the network which stores the data displayed when a field 201 is chosen, and File1. The file name on the above-mentioned server and Menu 1-0 are the description which says the menu name in the above-mentioned file.

[0110]

Next, decoding is explained using drawing 9. In addition, in drawing 9, the same sign is attached and shown in the same part as drawing 16, and the explanation is omitted. The configuration of the decoder which performs the usual program decoding (an image, audio synchronous playback) based on the program selection by the viewer and its selection is completely the same as the conventional configuration shown in drawing 16 so that clearly from drawing 9. However, it is as the 3rd operation embodiment having explained the actuation which refers to the field coordinate information (drawing 3 (a)) stored in memory 31 with synchronous playback with the image and voice of the PES packet of a field/pointer data (output of the PES encoding circuit 101 by the side of the encoder of drawing 8), and data reference directions according to a viewer further.

[0111]
With reference to the field coordinate information (drawing 3 (a)) stored in memory 31, the related additional information is the file File1 on Server Name of Network Server 112. Menu 1-0 contained in inside, Menu 1-1, Menu 1-2, and Menu 1-3 turns out that it is four and data are obtained from on the data server 116 on a network 115 through the network interface circuit 114. The data server 116 is the same as that of the data server 112 in drawing 8, and networks 115 and 111 are connected mutually.
[0112] With the above operation embodiment, in order to transmit a field as a coordinate value, it explained taking the case of the rectangle, but if a circle, a polygon and others, and a field can be expressed, it cannot be overemphasized that it can be adapted not only in a rectangle but this invention. Moreover, the same effectiveness is acquired even if it also transmits and receives additional information as a PES packet.
[0113]
By the way, the 1st, 3rd, and 4th operation embodiment which was explained above offer approach of the additional information seen from the transmitting side, respectively transmits to a receiving side by media, such as broadcast (a-1). (a-2) is distributed by internal memory media and which is stored in the location which can be referred to from both transmission and reception like a network (a-3) differed, respectively, and it corresponds and the description approach of the pointer for referring to additional information is changed.
[0114]
In order to decide an informational storing location to only, as a parameter required for pointer description, in the case of a

transmission channel (frequency) and PID, and external storage (b-2), in the case of broadcast (b-1) media, in the case of the device name of equipment and a file name (pathname), and a network (b-3), it is a server host name and a file name (pathname), and it consists of a parameter with which all show a physical location and the logical location in the location.

[0115]

It is possible to define the descriptive grammar which treats (b-1), (b-2), and (b-3) integrative as the description for treating the protocol with which it follows, for example, URL on the Internet (Uniform Resource Locator and reference (3) draft-ietf-uri-url-03.txt) differs integrative is offered.

[0116]

Actuation of specifying a «field» a viewer referring to data in such a case since it is common as the 1st, 3rd, and 4th operation embodiment explained, respectively by referring to broadcast media, external storage, and the data on a network according to the destination which the pointer shows accommodative inside a receiving set, without making it conscious of in what kind of path a viewer is actually provided with data seamless access to various data is attained. [The 5th operation embodiment] The 1st operation embodiment performs coordinate transformation of an «access field» by the receiving side with the 5th operation embodiment to carrying out by the transmitting side.

[0117]

That is, in a transmitting side, an «access field» is determined among the contents of an animation by which current broadcast is carried out. This field is changed synchronizing with the contents of a dynamic image. For example, the

«field» of plurality is used as the fixed level signal of a proper, respectively, and carries out pedestal level except it. Moreover, the «pointer» to the additional information accessed at the time of the field point is created.

[0118]

It creates «additional information» (an image, voice, and alphabetic data) to the point which a pointer shows. An «access field» is encoded to a packet (for example, PES of an MPEG-2 system layer) with a hour entry. In PES, it is possible to reproduce synchronously the packet by which multiplex was carried out with a time stump. Multiplex of a «image» and «voice» packet, a «pointer», «additional information», and the «field pointer» (for example, TS of an MPEG-2 system layer) is carried out, and they are transmitted.

[0119]

Next, in a receiving side, TS is decoded and the data element (PES) of an «image», «voice», and a «field» is obtained, respectively. Each PES is decoded and synchronous playback of an «image», «voice», and a «field» is performed based on a time stump. Here, if synchronous playback of data is pointed at, it means that the «field» which can access data, and its image and voice can be reproduced synchronously.

[0120]

When a viewer moves the pointer on a screen to a «field» inside by a remote controller etc., the cursor configuration of a pointer is changed and it is shown that it is a «field». When a viewer directs «refer to the data» in a «field», the «pointer» packet related with the field is decoded, «additional information» packet further associated based on the pointer is decoded, and it displays on a screen.

[0121]
In addition, the technique of having changed only the field transmitting and receiving method of the 1st operation embodiment is the 5th operation embodiment, and it is possible to change the 2nd thru/or 4th operation embodiment similarly. Hereafter, the 5th operation embodiment of this invention is explained focusing on difference with the 1st operation embodiment. In the 1st operation embodiment, the 5th operation embodiment is performed by the receiving side to performing coordinate transformation of a «field» by the transmitting side.
[0122]
Hereafter, it explains focusing on difference with drawing 1, referring to drawing 11. Drawing 11 shows the configuration of the encoder in the 5th operation embodiment. Actuation of the field decision circuit 117 differs in 98 of drawing 1. The actuation is explained using drawing 12.
[0123]
The field decision circuit 117 inputs a video signal Video1, and determines the above-mentioned «access field» among the contents of an animation. Drawing 12 (a) and (b) are the same images as drawin g 2 (a) and (b), respectively. The 1st operation embodiment setting this «field» as black level, although it was made to output the signal (drawing 2 (c)) used as pedestal level except it, in this operation embodiment, the signal (drawing 12 (c)) which serves as fixed level of a proper and pedestal level for every field, respectively is outputted.
[0124]
For example, let fields 41, 45, 46, and 47 be the level of 20IRE(s), 40IRE, 60IRE, and 80IRE, respectively. After the output of the field decision circuit 117 is inputted and

compressed by the compression circuit 118, it is encoded by PES in the PES encoding circuit 119.

[0125]

On the other hand, the output of the field decision circuit 117 is inputted into coincidence also in the pointer creation circuit 120. Here, the pointer to the information relevant to fields 41, 45, 46, and 47 and each is added, referring to additional information. The output data of the pointer creation circuit 120 are shown in drawing 13. It is related with the field on 41 of drawing 13 and in 309 of drawing 12 (c), and is 10IRE-29IRE. The signal level of a field 41 and 1000 are PID of the data packet displayed when a field 41 is chosen, and Menu 1-0. It is the description which says the menu name in the above-mentioned data. In addition, the same is said of 43, 44, and 45. The output data of the pointer creation circuit 120 are encoded to PES in the PES encoding circuit 121.

[0126]

Next, decoding is explained using drawing 14. It is as the conventional example having explained the usual program decoding (an image, audio synchronous playback) based on the program selection by the viewer, and its selection. The PES packet of «field» data (output of the PES encoding circuit 121 by the side of the encoder of drawing 11) can obtain PID with reference to PAT on memory 31, and PMT like an image or voice in MPU29. MPU29 controls FIFO memories 22 and 23 to depacket and incorporate only a packet with directed PID through the depacketing controller 28. The image data of FIFO memories 22 and 23 are elongated by the image decoders 39 and 40 at drawing 12 (c), it becomes considerable image data and is inputted into the coordinate transformation circuit 122. Moreover, also about the PES packet of «pointer»

data (output of the PES encoding circuit 121 by the side of the encoder of drawing 11), with reference to PAT on memory 31, and PMT, PID is obtained like an image or voice, the depacketing controller 28 is controlled in MPU29, and it incorporates to SRAM26. From the incorporated data stream packet, the table shown in drawing 13 is obtained and it stores in memory 31.

[0127]

In the coordinate transformation circuit 122, the signal level of each field and the relation of a coordinate are computed from the output signal of the image decoder 40. Furthermore, since the «pointer information» (drawing 13) inputted from MPU29 is the relation of the pointer to the signal level and additional information of each field, it can obtain the relation between a field coordinate and a pointer from these. Therefore, if the same processing as the 1st operation embodiment is performed to below, the same data as drawing 19 (d) shown in the conventional example can be displayed.

[0128]

That is, in the former, as shown in drawing 18 and drawing 19, by this invention, the direct reference of the information reference which needed five steps of selection procedures becomes possible. And it had to choose in the former, guessing and judging in which although the data of choice are a specific player's profile, data to refer to originally among the menu items displayed each time are contained as the player's jersey number is chosen in the player's affiliation team, and this drawing (b) in drawing 19 (a).

[0129]

According to this invention, the data of choice can be refered to directly and intuitively, although in other words the activity

which applies data to refer to the DS of the menu tree for which it is provided, and classifies them needed to be done. Furthermore, seamless reference of broadcast media, external storage, or various data on a network is attained.
[0130]
Namely, the thing which associate a dynamic image and a data element and to transmit, for example, efficient and intuitive which stopped the operating procedure that the digest image of old score progress could be referred to if the player who shot is pointed at and the player's profile and a score display will be pointed to minimum, referring to the data is attained. In addition, it cannot be overemphasized that it can carry out even if this invention is not limited to the above-mentioned operation embodiment but deforms variously.
[0131]
[Effect of the Invention] As explained above, according to this invention, the transmit information generation equipment and the receipt information regenerative apparatus which are used for operating procedure until it reaches data to refer to, the information transceiver system which can stop selection by unnecessary guess and decision to the minimum, and this system can be offered.

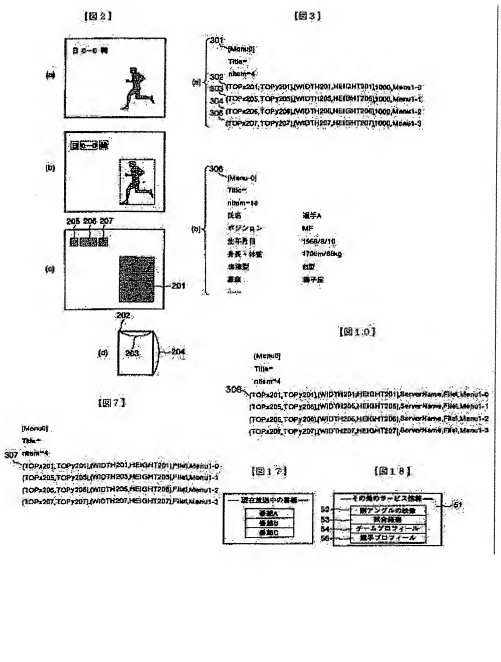
[Brief Description of the Drawings]
[Drawing 1] is the block circuit diagram showing the configuration of the transmit information generation equipment (encoder) of the 1st operation embodiment of the information transceiver system concerning this invention.
[Drawing 2] is drawing for explaining the decision approach of the access field of this operation embodiment.

[Drawing 3] is drawing explaining the additional information DS of this operation embodiment.
[Drawing 4] is the block circuit diagram showing the configuration of the receipt information regenerative apparatus (decoder) of this operation embodiment.
[Drawing 5] is the block circuit diagram showing the configuration of the transmit information generation equipment of the 3rd operation embodiment concerning this invention.
[Drawing 6] is the block circuit diagram showing the configuration of the receipt information regenerative apparatus of this operation embodiment.
[Drawing 7] is drawing explaining the additional information DS of this operation embodiment.
[Drawing 8] is the block circuit diagram showing the configuration of the transmit information generation equipment of the 4th operation embodiment concerning this invention.
[Drawing 9] is the block circuit diagram showing the configuration of the receipt information regenerative apparatus of this operation embodiment.
[Drawing 10] is drawing explaining the additional information DS of this operation embodiment.
[Drawing 11] is the block circuit diagram showing the configuration of the transmit information generation equipment of the 5th operation embodiment concerning this invention.
[Drawing 12] is drawing explaining the access field decision approach of this operation embodiment.
[Drawing 13] is drawing explaining the additional information DS of this operation embodiment.

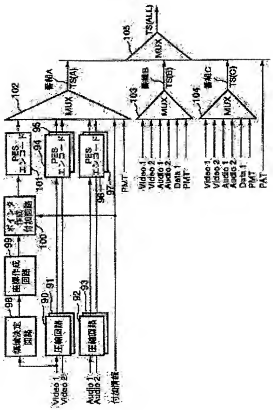
[Drawing 14] is the block circuit diagram showing the configuration of the receipt information regenerative apparatus of this operation embodiment.
[Drawing 15] is the block circuit diagram showing the packet multiple configuration in an MPEG 2 method.
[Drawing 16] is the block circuit diagram showing the configuration of the conventional receipt information regenerative apparatus.
[Drawing 17] is drawing showing the example of a display of a program configuration in equipment conventionally.
[Drawing 18] is drawing showing the conventional example of a menu display for referring to additional information in equipment conventionally.
[Drawing 19] is drawing showing the conventional example of a menu display for referring to additional information in equipment conventionally.
[Drawing 20] is drawing showing the DS for displaying additional information in equipment conventionally.
[Description of Notations]
11, 12, 13, 14 - Multiplex machine (MUX)
21 - Tuner
22-25 - FIFO memory
26 - SRAM
27 - Program memory
28 - Depacketing controller
29 - MPU
30 - Bus
31 - Memory
32 - VRAM
33 - D/A converter
34 - Screen composition machine

35 - Display
36 - Remote controller
37 - Infrared light sensing portion
38 - Microcomputer
39 40 - Image decoder
41 - Screen composition machine
42 - D/A converter
43 44 - Voice decoder
45 - Selector
46 - D/A converter
47 - Loudspeaker
48 - Clock regenerative circuit
90, 91, 92, 93 - Compression circuit
94, 95, 96, 97 - PES encoding circuit
98 - Field decision circuit
99 - Coordinate creation circuit
100 - Pointer creation addition circuit
101 - PES encoding circuit
102,103,104,105 - Multiplex machine (MUX)
106 - External storage
107 - Internal memory media
108 - Internal memory media
109 - External storage
110 - Network interface circuit
111 - Network
112 - Data server
113 - Additional information input terminal
114 - Network interface circuit
115 - Network
116 - Data server
117 - Field decision circuit

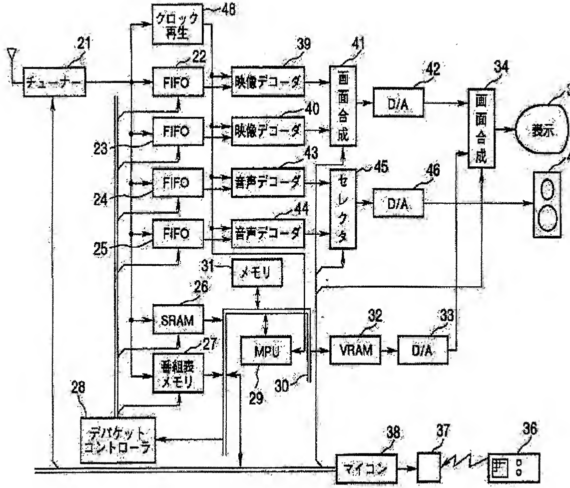
118 - Compression circuit
119 - PES encoding circuit
120 - Pointer creation circuit
121 - PES encoding circuit
122 - Coordinate transformation circuit



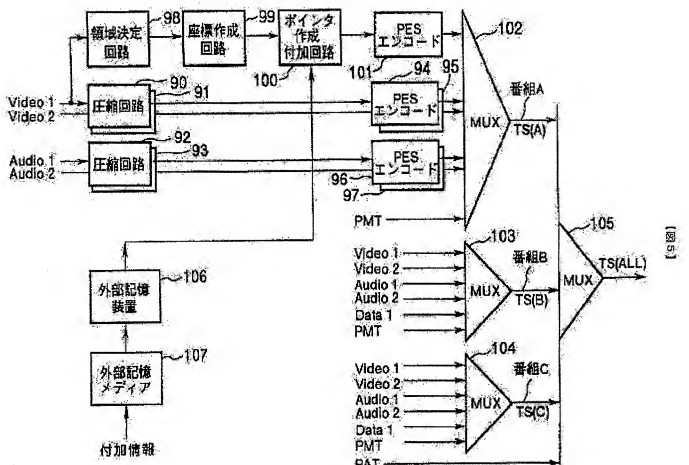
[図11]


TS(ALL)
MUX
102
103
104
105
PMT
PAT
Video 1
Video 2
Audio 1
Audio 2
Data 1

【図4】

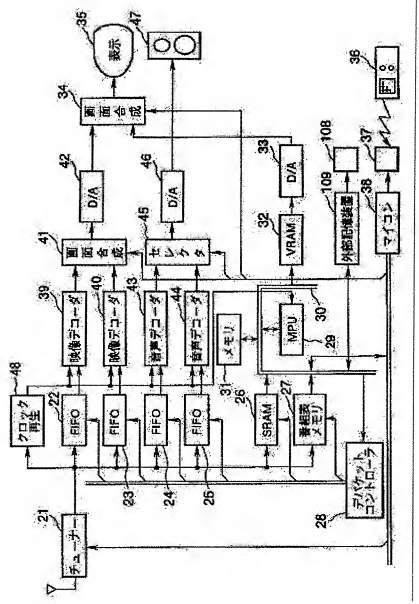


チューナー
21
FIFO
22
23
24
25
クロック再生
48
映像デコーダ
39
40
音声デコーダ
43
44
画面合成
41
セレクタ
45
D/A
42
46
33
画面合成
34
表示
35
47
メモリ
31
SRAM
26
番組表メモリ
27
MPU
29
30
VRAM
32
デパケットコントローラ
28
マイコン
38
37
36

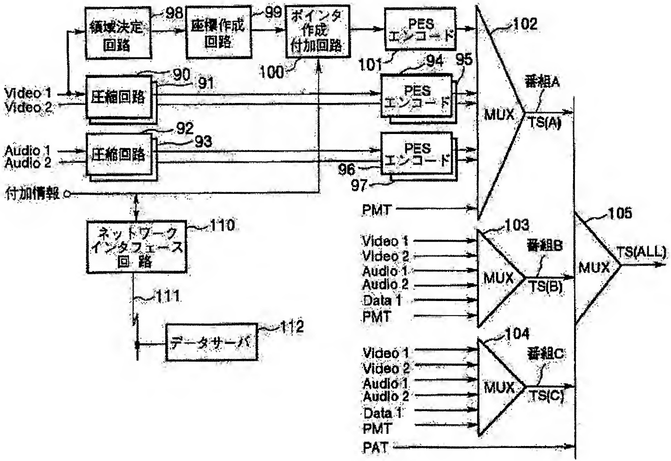

領域決定回路
98
座標作成回路
99
ポインタ作成付加回路
100
PESエンコード
101
102
94
95
Video 1
Video 2
圧縮回路
90
91
PESエンコード
番組A
MUX
TS(A)
Audio 1
Audio 2
圧縮回路
92
93
PESエンコード
96
97
PMT
105
103
Video 1
Video 2
Audio 1
Audio 2
Data 1
PMT
番組B
MUX
TS(B)
MUX
TS(ALL)
外部記憶装置
106
104
Video 1
Video 2
Audio 1
Audio 2
Data 1
PMT
PAT
番組C
MUX
TS(C)
外部記憶メディア
107
付加情報

[図5]

【図６】

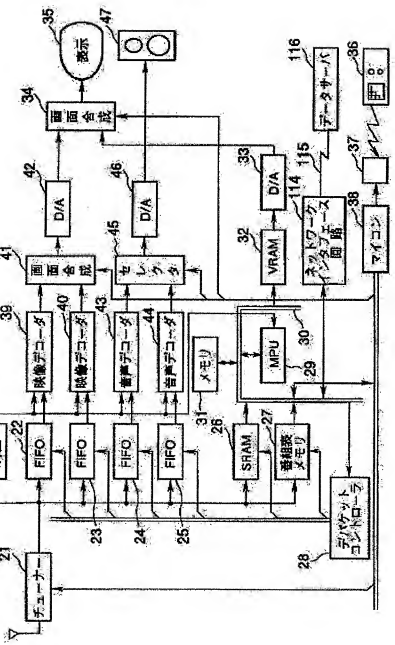

チューナー
21
クロック再生
48
FIFO
22
FIFO
23
FIFO
24
FIFO
25
映像デコーダ
39
映像デコーダ
40
音声デコーダ
43
音声デコーダ
44
メモリ
31
SRAM
26
専用メモリ
27
MPU
29
30
デパケットコントローラ
28
画面合成
41
ビデオシフタ
45
D/A
42
D/A
46
VRAM
32
D/A
33
画面合成
34
表示
35
47
外部記憶装置
109
108
マイコン
38
37
36

【図8】

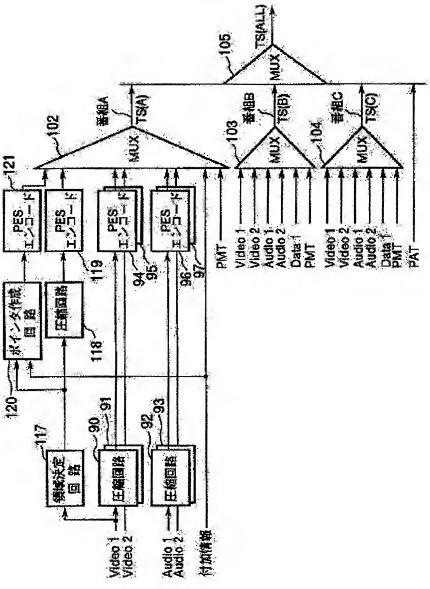


領域決定回路
座標作成回路
ポインタ作成付加回路
PES エンコード
圧縮回路
圧縮回路
PES エンコード
PES エンコード
ネットワークインタフェース回路
データサーバ
MUX
MUX
MUX
MUX
Video 1
Video 2
Audio 1
Audio 2
付加情報
PMT
Data 1
PAT
番組A
番組B
番組C
TS(A)
TS(B)
TS(C)
TS(ALL)
90
91
92
93
94
95
96
97
98
99
100
101
102
103
104
105
110
111
112

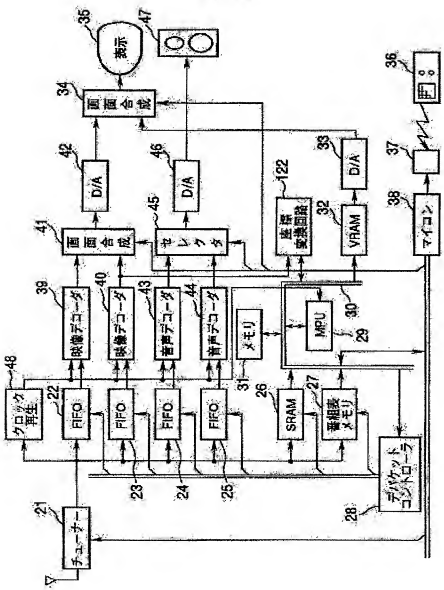
[図9]


チューナー
21
クロック再生
48
FIFO
22
FIFO
23
FIFO
24
FIFO
25
SRAM
26
管理用メモリ
27
デバイスコントローラ
28
メモリ
31
MPU
29
30
VRAM
32
D/A
33
D/A
42
D/A
46
画面合成
34
画面合成
41
セレクタ
45
映像デコーダ
39
映像デコーダ
40
音声デコーダ
43
音声デコーダ
44
ネットワークインタフェース回路
38
マイコン
37
データサーバ
116
ネットワーク
115
114
表示
35
47
36

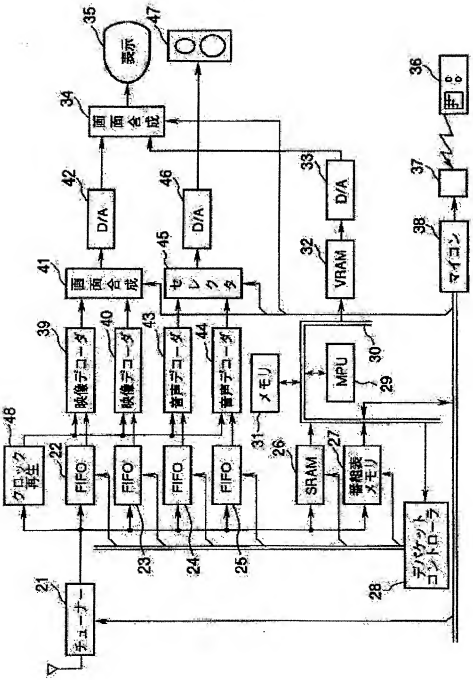
[図11]


Video 1
Video 2
Audio 1
Audio 2
付加情報
領域決定回路
圧縮回路
圧縮回路
符号化作成回路
圧縮回路
PES エンコーダ
PES エンコーダ
PES エンコーダ
PES エンコーダ
117
90
91
92
93
120
118
119
94
95
96
97
121
102
103
104
105
MUX
MUX
MUX
MUX
TS(A)
TS(B)
TS(C)
TS(ALL)
番組A
番組B
番組C
PMT
Video 1
Video 2
Audio 1
Audio 2
Data 1
PMT
PAT

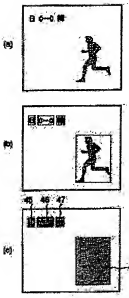
[図１４]


チューナー
21
クロック発生
48
FIFO
22
FIFO
23
FIFO
24
FIFO
25
映像デコーダ
39
映像デコーダ
40
音声デコーダ
43
音声デコーダ
44
メモリ
31
SRAM
26
書換用メモリ
27
MPU
29
30
デバイスコントローラ
28
画面合成
41
セレクタ
45
D/A
42
D/A
46
画面合成
34
表示
35
47
書換回路
122
VRAM
32
D/A
33
マイコン
38
37
36

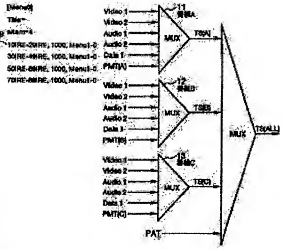
【図１６】


35
表示
47
34
画面合成
36
42
D/A
46
D/A
33
D/A
37
41
画面合成
45
セレクタ
32
VRAM
38
マイコン
39
映像デコーダ
40
映像デコーダ
43
音声デコーダ
44
音声デコーダ
30
MPU
29
48
クロック再生
22
FIFO
FIFO
FIFO
FIFO
31
メモリ
26
SRAM
27
書換え可能メモリ
23
24
25
28
デパケットコントローラ
21
チューナー

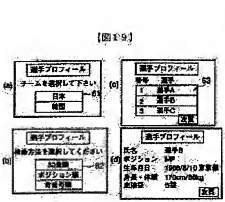
【図１２】



【図１３】



【図１５】



【図２０】